

Quality Improvement Needs Assessment for Evidence-Based Practice Readiness in Primary Care

DNP Final Project

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### Abstract

The purpose of this Doctor of Nursing Practice project is to conduct a needs assessment survey of nurse practitioners' (NPs) perceptions of readiness for evidence-based practice implementation in a primary care setting in the Midwest. The Advancing Research and Clinical Practice Through Close Collaboration Model was the framework used to prepare for system-wide implementation of EBP. The project design includes a descriptive survey that was administered through Check Box. A convenience sample of all eight NPs employed in the primary care organization was recruited via work email addresses. NPs were asked to complete three surveys: (1) the Organizational Culture & Readiness for System-Wide Integration of Evidence-Based Practice Survey, (2) the EBP Beliefs Scale, and, (3) the EBP Implementation Scale. Data were analyzed using descriptive statistics. Findings include (1) scores for EBP Beliefs were high, (2) a stronger foundation for EBP could be integrated into the organizational culture (3) administration and staff may not fully understand the EBP process (4) different definitions of EBP may exist amongst NPs, and (5) point of care staff could be empowered to generate decisions. Practice change recommendations include (1) establishing an organizational cultural of EBP, (2) developing an organizational commitment to provide resources and leadership necessary to transform the culture to one that appreciates the value of and demonstrates EBP daily, and (3) development and use of EBP mentors to facilitate the implementation of EBP. In conclusion, smaller organizations with fewer resources can creatively identify ways to implement and sustain EBP. Graduate level NPs within small organizations can be utilized as EBP champions and mentors. Smaller organizations can make a difference in EBP sustainability by creating visions and missions that incorporate EBP. Transformational leadership is required for an EBP organization to realize the benefits of improved patient

outcomes, high quality healthcare, lower costs, increased healthcare provider satisfaction and staff cohesion, and decreased intent to leave and turnover.

## Quality Improvement Needs Assessment for Evidence-Based Practice Readiness in Primary Care

**Chapter One: Nature of the Project****Introduction to the Problem**

In 2001, the Institute of Medicine (IOM) described the gap between science and implementation in practice as a quality chasm. This gap appears to be narrowing slowly and at best unevenly (AHRQ, 2006). It has been estimated by Balas and Boren (2000) that the uptake of new medical discoveries into clinical practice progresses at a rate of only 14% after 17 years. As important if not more important, the average American receives only 50% of recommended preventive, acute, and long-term health care (McGlynn et al., 2003).

The apparent loss of evidence between generation of new knowledge and its implementation in routine care has become a concern of practitioners, professional organizations, legislators, research funding agencies and academic institutions (Green, Glasgow, Atkins, & Stange, 2009). In the past, researchers and journal reviewers have exacerbated this gap by emphasizing internal validity and causal relationships, often at the expense of the contextual factors that make evidence relevant to clinical practice. More recently, favorable developments in implementation science and policy, new models of care and organizations such as the IOM, the United States Preventive Services Task Force (USPSTF), the Patient-Centered Outcomes Research Institute (PCORI) and the National Committee for Quality Assurance (NCQA) have contributed to bridging the evidence-based practice (EBP) gap. These organizations as well as others have developed key strategies that are advancing EBP in primary care in the United States.

New models of care such as the PCMH along with key initiatives from major stakeholders creates a powerful push for change. For example, the Institute of Medicine's

Roundtable on Evidence-Based Medicine's declared an initiative to transform the manner in which evidence on clinical effectiveness is generated and used to improve healthcare and the health of Americans. They have set a goal that, by the year 2020, 90% of clinical decisions will be supported by accurate, timely, and up-to-date clinical information and are based on the best available evidence (Olsen, Aisner, McGinnis, Institute of Medicine, & Roundtable on Evidence-Based Medicine, 2007). The United States Preventive Services Task Force (USPSTF), a national, independent panel of experts in primary care and prevention sponsored by the Agency for Healthcare Research and Quality (AHRQ) who systematically review the evidence of effectiveness and develop recommendations for preventive services such as screening tests, counseling services, and preventive medications. Emphasis has been placed upon which preventive services should be used by healthcare providers in primary care and for which populations (Melnik & Fineout-Overholt, 2011). The USPSTF produces the *Guide to Clinical Preventive Services* (AHRQ, 2014) used by primary care providers, internists, and nurses as an evidence-based source for evidence in making decisions about the delivery of preventive services in primary care. The patient-centered medical home (PCMH) has become a national initiative and model of care that organizes primary care in order to emphasize care coordination and communication to transform primary care into what patients want it to be. PCMHs can help narrow the EBP gap, lead to higher quality and lower costs and improve patients' and providers' experience of care. PCORI, an independent, nonprofit organization governed by a 21-member Board of Governors established by Congress through the 2010 Patient Protection and Affordable Care Act, focuses on patient-centered outcomes research designed to inform health care decisions by providing evidence on the effectiveness, benefits, and harms of different treatment options for different patients (PCORI, 2014). The NCQA is another stakeholder that was

founded in 1990, a private not-for-profit organization whose mission is to improve the quality of health care through measurement, transparency and accountability (NCQA, 2014). NCQA Recognition Programs empower employers, health plans, patients and consumers to make informed health care decisions based on quality. In addition, the NCQA assists PCMHs in delivering well-managed, high quality care and service based on outcome evidence. More and more researchers and reviewers have demonstrated efforts to support practice-based evidence through active engagement with the intended users and beneficiaries. Supporting practice-based evidence enhances and increases evidence-based practice.

Dissemination of research findings alone does not typically change the way clinicians practice (Melnyk, 2013b). A key issue is the readiness of care providers to adopt and implement new evidence in making changes to existing practice. Although findings from studies have revealed multiple benefits of delivering EBP, including higher quality of healthcare, improved reliability in the area of safety, enhanced patient outcomes and reduced variations in care and costs, it falls short as the standard of care used by clinicians in healthcare settings across the globe (Melnyk, Gallagher-Ford, Long, Fineout-Overholt, 2014; Melnyk, 2013b). Creating cultures and ecosystems that enhance and sustain EBP continue to be challenges faced by leaders and healthcare systems (Melnyk, 2013b).

Over the past several decades, healthcare professionals have begun to seek and use information in new ways (Melnyk & Fineout-Overholt, 2011). Randomized clinical trials (RCTs) were introduced into medicine in the 1950's as an unbiased way to determine the real effects of clinical interventions (Enkin, Glouberman, Groff, Jadad, & Stern, 2006). Today few practitioners or managers have the time or the skills to locate and appraise the large volume of research

publications on a given clinical question. Clinicians may be uncertain about treatment options to use when the research results or the advice of experts is conflicting.

Fortunately, for more than forty years two tools have emerged to facilitate the application of research evidence to clinical practice. These two tools include systematic reviews and clinical practice guidelines (Davies, 2002). The first tool, a systematic review, addresses a specific clinical question and utilizes well-defined methods to find, appraise, and analyze the results from studies, including statistical techniques such as meta-analysis to summarize the results from several studies and provide an overall estimate of the effect of an intervention. Clinical practice guidelines or best practice guidelines are a second tool that assists professionals in staying abreast the ever-growing body of scientific knowledge. Development and implementation of clinical practice guidelines appears to be one of the most promising and effective tools for improving the quality of health care (Grol, 2001). Clinical practice guidelines are usually created by an expert panel and incorporate the results from relevant systematic reviews regarding a specific topic as well as other types of research and consensus views of expert clinician and researcher panels. The product is evidence-based guidelines with recommendations that can be used for implementing policy and practice change (Davies, 2002).

In the United States, the National Guideline Clearinghouse (NCG) is an extensive web-based collection of evidence-based clinical practice guidelines (National Guideline Clearinghouse [NGC], 2014). The NGC's 2013 inclusion criteria for guidelines reflect the 2011 Institute of Medicine (IOM) definition of a clinical practice guideline. This inclusion definition emphasizes two important aspects of a guideline that should be represented in good evidence-based guidelines: being based on a systematic review and assessing the benefits and harms of recommended care and alternative care options. As part of the NGC annual verification process,

NGC's inclusion criteria require that guidelines represented in the database have been developed, reviewed, or revised within the last five years. All guidelines that no longer meet this criterion are removed from the Web site at the end of each calendar year.

### **Obstacles and Opportunities of Evidence-Based Practice.**

The Advancing Research and Clinical Practice Through Close Collaboration (ARCC) Model: A Model for System-Wide Implementation and Sustainability of Evidence-Based Practice (Figure 1), was conceptualized in 1999 by Bernadette Melnyk for the purpose of providing healthcare institutions and clinical settings with an organized conceptual framework that can guide system-wide implementation and support sustainability of EBP in order to achieve quality outcomes (Melnik & Fineout-Overholt, 2011). Because the culture of an organization can advance or inhibit EBP, one of the first steps within the model is the organizational assessment of culture and readiness for system-wide implementation of EBP and identifying sufficient resources within the system that need to be allocated to support the work of EBP throughout the organization. In addition, part of this practice change involves working with perceptions of clinicians about EBP implementation. Guiding clinicians to understand the value of an evidence-based practice change may first involve overcoming barriers and recognizing facilitators.

Healthcare providers are often very motivated to be evidence-based practitioners, but face many individual and organizational obstacles. Barriers to EBP have long been identified in the literature and include organizational culture and environment or context, outdated policies and procedures, resistance from nurse leaders or managers and colleagues, negative attitudes toward researchers by clinicians, time, inadequate EBP knowledge and skills, misperceptions and negative attitudes about research and evidence-based care, and the lack of belief that EBP will



result in greater positive outcomes compared to traditional care (Melnyk, Fineout-Overholt, Gallagher-Ford, & Kaplan, 2012; Melnyk et al., 2004). Health care providers struggle to keep pace with the volume of research and journal articles that apply to clinical practice while delivering evidence-based care and managing overwhelming patient loads that are yet to be reimbursed based on patient outcomes. Lack of time and resources to adequately search for and appraise evidence, organizational constraints such as lack of administrative support or incentives, and lack of access to EBP mentors are also barriers. Clinicians face demands from patients for a certain type of treatment, peer pressure to continue with practices that are steeped in tradition, resistance to change, lack of autonomy over practice and incentives, lack of consequences for not implementing EBP, and inadequate content and behavioral skills building in educational programs and continued teaching of how to conduct rigorous research instead of teaching an EBP approach to care in undergraduate and graduate programs. A growing body of research has emerged related to moving beyond these barriers to EBP toward integrating strategies to successfully implement and sustain organizational EBP.

Conversely, as clinicians work to overcome barriers in implementing EBP, there are facilitators that have been found to speed the translation of evidence into clinical practice. These include administration and leadership that supports and fosters a culture for EBP, research-practice partnerships, EBP mentors who have excellent EBP skills as well as knowledge and proficiency in change strategies (Melnyk, 2007; Melnyk, 2013a) and adequate time to critically appraise studies and implement their findings. Incorporation of clinical promotion systems that integrate EBP competencies for advancement facilitates ownership of EBP (Newhouse, 2007). Oman, Duran, and Fink (2008) suggest the utilization of evidence-based clinical practice policies and procedures. Research reports that are clearly written, proper tools such as computers

dedicated to EBP and computer-based educational programs (Hart et al., 2008) support the advancement of EBP as well.

### **What is Evidence?**

The EBP movement gained significant momentum in the 1990s when Sackett et al. (1996) defined evidence-based medicine as conscientious use of current best evidence in making decisions about individual patient care. They stated that evidence-based medicine means integrating clinical expertise with the best available external clinical evidence from systematic research. Clinical expertise is reflected in many ways including effective and efficient diagnosing and use of patients' predicaments, rights, and preferences in making clinical decisions about their care. Since then, the definition of EBP as expanded to a problem-solving approach to clinical practice that integrates external evidence, internal evidence and patient preferences and values. Evidence-based clinical decision-making incorporates a synthesis of evidence from multiple studies and combines it with the expertise of the clinician as well as patient preferences and values (Melnyk & Fineout-Overholt, 2011).

### **Components of Evidence-Based Practice.**

In the literature, evidence has been divided into external evidence and internal evidence. External evidence is generated through systematic rigorous research such as RCTs or cohort studies. Systematic reviews of RCTs are often regarded as the strongest level of evidence on which to base practice decisions, but there are other components of evidence to consider along with RCTs. External evidence also includes evidence from evidence-based theories, opinion leaders, and expert panels. Findings from external evidence are intended to be generalizable and used in other settings. External evidence includes a systematic search and critical appraisal and synthesis of the most relevant and best research to answer a clinical question. When

implementing external evidence clinicians are interested in knowing if achieving results from their own clinical practice are similar to those derived from a specific body of evidence. Transferability addresses the question about whether findings from research can be translated into the real-world clinical setting.

On the other hand, internal evidence, according to Melnyk and Fineout-Overholt (2011), includes clinical expertise and evidence that is generated from outcomes management or quality improvement projects, a thorough patient assessment and evaluation, and use of available resources typically generated through practice initiatives needed to achieve desired patient outcomes. Practice initiatives include outcomes management and improvement projects that are developed and utilized for the purpose of improving clinical care within the setting in which it is created. Researchers generate new knowledge by using external evidence that is generated through rigorous research. EBP provides clinicians with the tools needed to translate the external evidence into clinical practice and integrate it with internal evidence to improve patient outcomes and quality of care within their place of practice.

Utilizing the three components of EBP, external evidence (from research, evidence-based theories, opinion leaders, and expert panels), clinical expertise (internal evidence generated from outcomes management or quality improvement projects, a thorough patient assessment and evaluation, and use of available resources), and patient preferences and values guides' evidence-based clinical decision-making. Clinicians often ask the question, "how much and what type of evidence is needed to change practice." Melnyk and Fineout-Overholt (2011) suggest using this rule of thumb: The level of evidence plus the quality of evidence equals the strength of the evidence. Ideally, the strength of the evidence provides clinicians with the confidence needed to change practice. However, guidelines and recommendations for screening tests such as

mammography and prostate-specific antigen (PSA) are not only based on empirical information about the screening tests but also on value judgments, patient and family history and patient preferences. Some patients may prefer a shorter survival time with a better quality of life to a longer survival time and a perceived poor quality of life.

### **Steps of Evidence-Based Practice.**

According to Melnyk and Fineout-Overholt (2011), there are seven critical steps of EBP.

These seven steps include:

- Cultivate a spirit of inquiry
- Ask the burning clinical question in the format that will yield the most relevant and best evidence such as the PICOT (**P**atient population, **I**ntervention or Issue of interest, **C**omparison intervention or group, **O**utcome, and **T**ime frame) format
- Search for and collect the most relevant and best evidence to answer the clinical question (searching for systematic reviews, including meta-analyses)
- Critically appraise the collected evidence for its validity, reliability, and applicability, then synthesize that evidence
- Integrate the evidence with one's clinical expertise and patient preferences and values to implement a clinical decision
- Evaluate outcomes of the practice decision or change based on the evidence
- Disseminate the outcomes of the EBP decision or change

EBP provides clinicians with the tools needed to translate the external evidence into clinical practice and integrate it with internal evidence to improve patient outcomes and quality of care within their place of practice.

**Significance of Study to Nursing and Health Care**

Newhouse (2007) states that EBP is fundamental to the professional practice of nursing based on the following tenets:

- Nursing is a science and a profession
- Nursing practice should be based on the best available evidence
- A hierarchy of evidence exists
- Research findings should be translated to practice
- Nursing values efficiency and effectiveness

Also in support of the EBP movement, The American Nurses Association's publication, *Nursing: Scope and Standards of Practice, 2<sup>nd</sup> Edition* (2010), identifies evidence-based practice and research as a standard of professional performance and expects the registered nurse to integrate evidence and research findings into practice. The EBP registered nurse competencies include:

- Utilizing current evidence-based nursing knowledge, including research findings, to guide practice
- Incorporating evidence when initiating changes in nursing practice
- Participating in the formulation of EBP through research as appropriate to education level and position
- Sharing personal or third-party research findings with colleagues and peers

Additional competencies for the graduate-level prepared specialty nurse and the advanced practice registered nurse include:

- Contributing to nursing knowledge by conducting or synthesizing research or other evidence that discovers, examines, and evaluates current practice, knowledge, theories, criteria, and creative approaches to improve healthcare outcomes
- Promoting a climate of research and clinical inquiry
- Disseminating research findings through activities such as presentations, publications, consultation and journal clubs

Nursing leaders, advanced practice nurses (APNs), Doctor of Nursing Practice (DNP) graduates, educators, and nurse researchers are often viewed as mentors and role models and therefore are in an ideal position to influence others regarding the implementation, use, and sustainability of EBP (Chism, 2010).

There are several important reasons for consistently implementing EBP. Most importantly, EBP leads to the highest quality of care, best patient outcomes and it reduces healthcare costs and geographic variation in the delivery of care (Reigle et al., 2008; Talsma, Grady, Feetham, Heinrich, & Steinwachs, 2008). In addition, findings from studies indicate clinicians feel more empowered and satisfied in their roles when engaged in EBP, which may translate into reducing turnover rates in healthcare professions (Fineout-Overholt & Johnston, 2005).

Healthcare professionals seek answers to clinical questions on a daily basis. Because evidence evolves continually clinicians must include the latest evidence in their daily decision-making. Without current best evidence, practice becomes rapidly outdated to the potential detriment of patients. Healthcare providers must take seriously implementing practices not based on sound evidence. When practices are not based on sound evidence, the physical, emotional and financial cost to patients and their family members can be great.

Even if clinicians remain resistant to implementing EBP, hospitals are being denied payment for patient complications when evidence-based guidelines are not being followed. In addition to pressure from third-party payers, patients and family members are seeking evidence about the most current and effective treatments about their health conditions. Rapid transition of research findings into daily practice must become the norm as healthcare moves toward a complete paradigm shift in delivering evidence-based care.

**Purpose**

The purpose of this project is to conduct a needs assessment survey of primary care NP's perceptions of readiness for EBP implementation at a Midwestern federally qualified health center with level three patient-centered medical home certification from the National Committee for Quality Assurance (NCQA).

**Project Objectives**

The project objectives include the following:

1. To assess NPs' perceptions of organizational and cultural barriers and facilitators to implementing EBP within the context of primary care in the Midwest.
2. To assess the strength of beliefs in EBP among primary care NPs employed in a primary care setting in the Midwest.
3. To assess the extent to which EBP is implemented among primary care NPs employed in a primary care setting in the Midwest.

## **Chapter Two: Review of Literature**

### **Theoretical Framework**

#### **Evidentialism.**

Many nurses are rooted in the belief that they don't need evidence to support their practice because by caring for and about patients we come to "know" what's best for them. Often EBP is resisted by the nurse's perception that it devalues clinical experience and expertise. Generating discussion beyond this impasse and highlighting the connection between the three elements of EBP (evidence, patient preferences/values and clinical expertise) and nurses' core values may lead to dialogue that resonates with nurses and ultimately moves the profession forward on the EBP paradigm shift continuum.

Changing clinical practice is a challenging and complex endeavor. A core concept in determining whether there is value in the shift to evidence-based nursing practice requires consideration of evidence in the development of beliefs, knowledge, and the decision-making process (Gallagher-Ford, 2011). How a person decides on what to base decisions, whether there is a hierarchy of importance of information and whether there is a difference in how decisions should be made when an individual is considered an expert in a field of knowledge are pertinent considerations.

Evidentialism is a theory that explains what is needed for an individual to have a justified belief about a particular proposition, situation, or decision (Gallagher-Ford, 2011). In 2004, researchers published a collection of essays on evidentialism in which justification about a particular proposition is determined by the quality of the believer's evidence for the belief (Conee & Feldman, 2004). They also contend that suspicion of the belief can be justified based on the same argument. Their point is that the attitude that a person is justified in having is one



that fits the person's evidence at a particular time. Therefore, a justified attitude toward a proposition and the decisions and actions based on that attitude that follow are determined by the person's evidence. Ultimately then, the decision to change practice is an intrinsic one and every clinician has to arrive at his or her own trajectory.

In 2006, Aikin modified the original 2004 thesis, calling it modest evidentialism, which added dimensions that further align this theory with clinical practices such as nursing. Aikin (2006) addresses the higher obligation for individuals who are considered knowledgeable experts in a field to have detailed and extensive evidence for beliefs in one's area of expertise. This is a cognitive obligation as well as a practical and contractual one. If others rely on the nurse's expertise and counsel, her authority is required to have the best evidence. Otherwise, she has failed to do her job in her community. This aspect of evidentialism provides a philosophical framework for the higher obligation of professional nurses, as the experts in nursing practice and decision making to incorporate current and relevant evidence in their practice. If one accepts the professional license to practice as a nurse, one accepts the expert role, responsibilities, obligations, and burdens that accompany that license. EBP can provide the structure and foundation to meet these obligations.

### **Advancing Research and Clinical Practice Through Close Collaboration (ARCC)**

#### **Model.**

EBP models support an organized approach to the implementation of EBP, prevent incomplete implementation, improve use of resources, and facilitate evaluation of outcomes (Schaffer, Sandau, & Diedrick, 2013). The application of EBP models is intended to breakdown the complexity of the challenge of translating evidence into clinical practice. Implementation science is a relatively new field of inquiry yet there is increasing recognition that efforts to

change practice should be guided by conceptual models or frameworks (Graham & Tetroe, 2007). As a result, numerous models have been developed to systematically guide EBP implementation. Most models have yet to be tested. Graham and Tetroe (2007), conducted a literature review of many existing models and identified common steps and phases which include

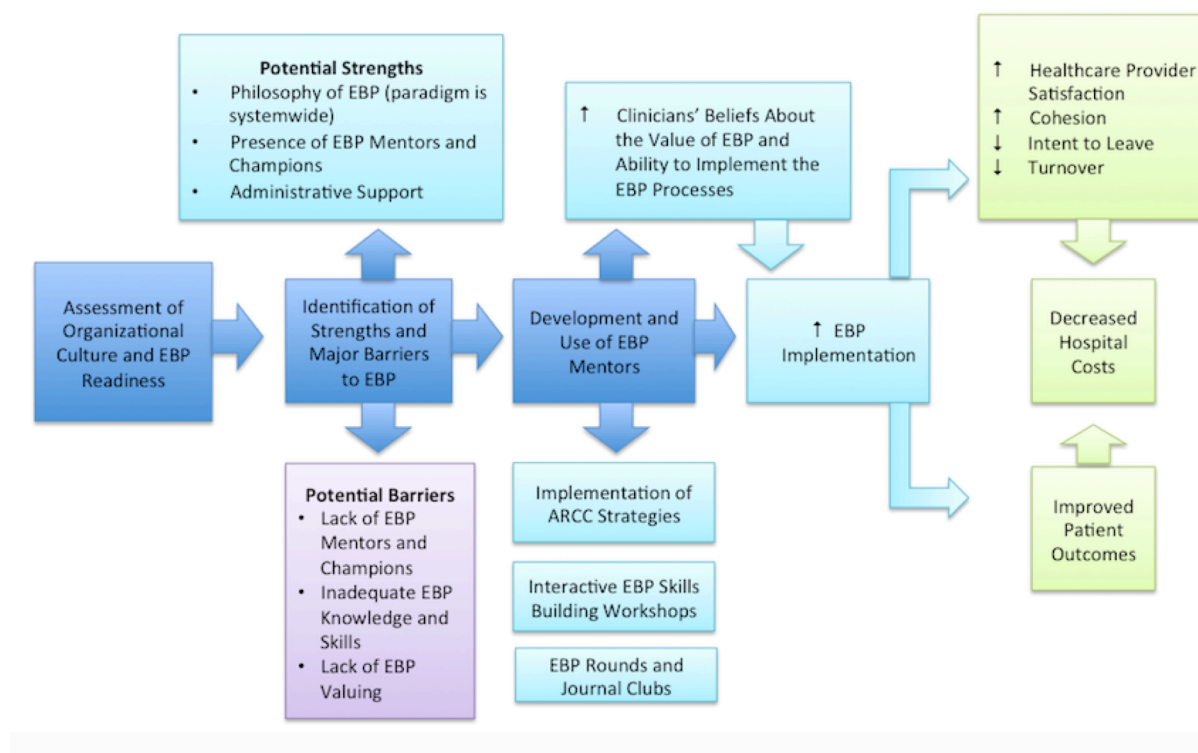
- Identify a problem that needs addressing
- Identify stakeholders or change agents who will help make the change process happen
- Identify practice change shown to be effective through high-quality research that is designed to address a problem
- Identify and address the potential barriers to the practice change if possible
- Use effective strategies to disseminate information about the practice change to those implementing it
- Implement the practice change
- Evaluate the impact of the practice change on structure, process, and outcome measures
- Identify activities that will help sustain the practice in change

There are multiple options for structuring an EBP program. The choice for a model and process is dependent on the goals and needs of the organization. Matching the choice of model and process increases compatibility, congruence with organizational values and promotes reinvention (Newhouse, 2007).

One such model, the ARCC Model: A Model for System-Wide Implementation and Sustainability of Evidence-Based Practice (Figure 1), was conceptualized in 1999 by Bernadette Melnyk. The purpose of the ARCC model is to provide healthcare institutions and clinical settings with an organized conceptual framework that can guide system-wide implementation

and support sustainability of EBP in order to achieve quality outcomes (Melnyk & Fineout-Overholt, 2011). Over the past decade, the model has been further developed through empirical testing of key relationships in the model and their extensive work with healthcare institutions to advance and sustain EBP. Valid and reliable instruments are available to measure key constructs in the ARCC model, barriers and facilitators to EBP as well as clinicians' beliefs about and actual implementation of EBP. Established workshops and academic offerings are available that develop EBP mentors who can work closely with point-of-service staff to strengthen their beliefs about and implementation of EBP. The availability of these tools and resources allows an organization to monitor its progress in the system-wide implementation and sustainability of EBP.

**Figure 1. Advancing Research and Clinical Practice Through Close Collaboration (ARCC) Model (Melnik & Fineout-Overholt, 2005)**



Control Theory (Carver, 1982; Carver & Scheier, 1998), the conceptual framework for guiding the ARCC model, contends that individuals are behaviorally motivated to reach goals when a discrepancy exists between a standard or goal such as the system-wide implementation of EBP and a current state such as the extent to which an organization is implementing EBP. As previously mentioned, many barriers exist in healthcare organizations that inhibit clinicians from implementing EBP. In the ARCC model, EBP mentors are developed and strategically placed within the healthcare system to mitigate barriers commonly encountered by practicing clinicians when implementing EBP (Melnik & Fineout-Overholt, 2011).

Cognitive behavioral theory (CBT) is also used within the ARCC model to guide behavioral change in individual clinicians toward EBP. CBT emphasizes the importance of individual, social, and environmental factors that influence cognition, learning, emotions, and behavior (Beck, 1979; Freeman & Freeman, 2005). The basic foundation of CBT is that an

individual's behaviors and emotions are mostly determined by the way he or she thinks or his or her belief as described by Melnyk and Moldenhauer (2006) in the thinking-feeling-behaving triangle. Based on CBT, the ARCC model contends that when clinician's beliefs about the value of EBP and their ability to implement it are strengthened, there will be greater implementation of evidence-based care. Within the ARCC model, EBP mentors work with point-of-care clinicians to strengthen their beliefs about the value of EBP and their ability to implement EBP.

There are several central constructs within the ARCC model. The first step within the model is the organizational assessment of culture and readiness for system-wide implementation of EBP. The culture of an organization can advance or inhibit EBP. Sufficient resources within the system need to be allocated to support the work of EBP throughout the organization. Administrators and point-of-care providers must both adopt the EBP paradigm for system-wide implementation to be achieved and sustained.

Once key strengths and opportunities for advancing EBP as well as barriers within the organization are identified, a cadre of EBP mentors is developed within the organization. EBP mentors are typically advanced practice nurses (APNs) or baccalaureate-prepared nurses where health systems do not have APNs who work directly with the point-of-care staff and who have in-depth knowledge and skills of EBP and of individual and organizational change strategies along with mentorship skills to implement EBP. Implementing EBP includes shifting from a traditional paradigm to an EBP paradigm, conducting EBP implementation projects, and integrating practice-generated data to improve the quality of healthcare as well as patient and/or system outcomes. Within the ARCC model, beliefs about the value of EBP and a clinician's ability to implement it are then measured using the EBP Beliefs Scale. Findings from research

indicate that when nurses' beliefs about the value of EBP and their ability to implement it are strong, then their implementation of EBP is greater (Melnyk et al., 2004).

EBP implementation in the ARCC model is defined as practicing based on the EBP paradigm, a paradigm that uses the EBP process to improve outcomes. The EBP process begins with asking clinical questions and incorporates research evidence and practice-based evidence in point-of-care decision-making. However, simply engaging the process is not enough. The assessment of organizational culture and readiness for EBP, identification of strengths and major barriers to EBP, the development and use of EBP mentors, and the assessment of the clinician's beliefs about the value of EBP and the ability to implement the EBP process must be coupled with (a) the expertise of the clinician to gather practice-based evidence such as data from practice initiatives such as Quality Improvement (QI), gather, interpret, and act on patient data; and effectively use healthcare resources and (b) what the patient and family value and prefer. This combination within a context of caring leads to innovative decision-making at the point-of-care with quality outcomes and allows each patient-provider encounter to be individualized.

EBP implementation within the ARCC model is measured with the EBP Implementation Scale (Melnyk, 2002). The ARCC model contends that greater EBP implementation is associated with higher nurse satisfaction that eventually leads to less turnover rates and healthcare expenditures. The final step in the ARCC model is for EBP mentors and clinicians who practice according to the EBP paradigm to impact provider, patient, and system outcomes. EBP mentors and those they influence focus on achieving the best care outcomes, thus making a difference in the lives of patients and the success of the organization.

**Related Research**

Environmental readiness refers to the ability of the healthcare environment to respond to change and implement processes that can improve patient outcomes (Smith & Donze, 2010). The healthcare environment can be global, national, regional, local, or a single organization. Organizational readiness is a state of preparedness for change, psychologically and behaviorally. This requires having necessary knowledge, skills, resources, and support and is a critical precursor to successfully implementing complex changes in clinical practice. Organizational change efforts often fail because organizational leaders have not established sufficient organizational readiness for change before implementation. Assessment of organizational readiness for EBP can be categorized into three areas, organizational culture, organization infrastructure, and organizational resources (Smith & Donze, 2010).

Readiness for EBP implementation at the organizational level is the focus of this project. Research related to barriers and facilitators to organizational readiness for EBP implementation is centered in the following areas, including nurses' perceived knowledge, readiness, beliefs, skills, and needs regarding implementation of EBP, EBP barriers, EBP facilitators, and the implementation of EBP.

**Nurses' Knowledge, Beliefs, Readiness, Skills and Needs Regarding Implementation of EBP.**

In 2004, Melnyk et al. conducted a descriptive study with a convenience sample of 160 nurses who were attending EBP conferences or workshops in four states located in the eastern United States, evidence level VI. The purpose of this study was to describe (1) the level of nurses' knowledge and beliefs about EBP, (2) the extent to which their practice is evidence-based, and (3) the relationship among these key variables. The Transtheoretical Model of

Organizational Change and the Control Theory were used to guide survey development. Findings indicate that although participant beliefs about the benefit of EBP were high, knowledge of EBP was relatively low. Significant relationships were found between the extent to which nurses' practice is evidence-based and (1) nurses' knowledge of EBP, (2) nurses' beliefs about the benefits of EBP, (3) having an EBP mentor, and (4) using the Cochrane Database of Systematic Reviews and the National Guideline Clearinghouse (Melnik et al., 2004). EBP mentors may be key in advancing and accelerating the shift toward evidence-based nursing practice. Caution should be used in generalizing these results to other practicing nurses as this study utilized a convenience sample of nurses who choose to attend EBP workshops and were motivated to learn knowledge and skills related to EBP. There was also variability in the number of nurses who responded to individual items on the survey.

In 2005, Pravikoff, Tanner, and Pierce examined U.S. registered nurses' (RNs) perceptions of the information resources available to them and their skills in utilizing those resources using a descriptive, exploratory survey. The purpose of this study was to determine nurses' readiness to implement EBP that included (a) awareness of a need for information, (b) the ability to identify needed information, (c) the ability to search available research, and (d) the ability to apply the information or evidence to practice. Surveys were mailed to a stratified random sample of 3,000 RNs, 1,097 nurses (37%) responded to the 93-item questionnaire. Seventy-nine percent of the respondents were 40 years of age or older and the majority had received their basic nursing education before the widespread availability of electronic information resources and personal computers. This large sample size study was amongst the first to raise awareness within the nursing profession regarding the need for education in information retrieval and the value of research (Pravikoff, Tanner, & Pierce, 2005). Major



findings indicated that (a) the most frequent source of information is a colleague or peer; (b) 39% of the sample felt that they needed information only seldom or occasionally; (c) 47% were not familiar with the term “evidence-based practice”; (d) more than half do not believe that their colleagues utilize research findings in the practice environment; (e) most do not search appropriate information resources, such as Medline or CINAHL, to gather practice information; (f) 77% of the respondents had never received instruction in the use of electronic resources; (g) besides time, the greatest personal barrier in practice was “lack of value for research,” and (h) the greatest organizational barrier to using information in practice was “presence of other goals with a higher priority.” Nurses within this study working in the clinical setting were generally unprepared for a practice built on evidence. This could be attributed to the changes in technology over the past two decades and the failure of nursing education programs to prepare students at all levels to understand and value a practice based on more than tradition, intuition, and experience. Pravikoff et al., (2005) concluded that U.S. RNs are not ready for evidence-based practice because of gaps in information literacy and computer skills, limited access to high quality information resources, and above all, the attitudes toward research.

Koehn and Lehman (2008) conducted a study using a descriptive, cross sectional survey design. The purpose of this study was to investigate RNs’ perceptions, attitudes, and knowledge/skills associated with EBP. The *Clinical Effectiveness and Evidence-Based Practice Questionnaire* was distributed to all nurses ( $n = 1031$ ) in a large Midwestern urban medical center in the United States (response rate was 40.9%). Findings indicate that participants had moderate scores on practice and attitudes towards evidence-based practice. The knowledge/skills mean scores were somewhat lower. Statistically significant differences were found for attitudes between those with baccalaureate and higher education compared to those with associate and

diploma education (Koehn & Lehman, 2008). The two most cited barriers to implementing evidence-based practice were time and knowledge. This study was limited by the use of a convenience sample, utilization of a medical center that had recently begun its pursuit of Magnet status, a higher proportion of BSN-prepared nurses in the sample and the *Clinical Effectiveness and Evidence-Based Practice Questionnaire* was quite new at the time of the study and needed further testing. This study suggests that a systematic assessment is needed when developing a plan for enhancing organizational culture of evidence-based practice.

Brown, Wickline, Ecoff, and Glaser (2008) conducted a descriptive cross-sectional research study, with a convenience nonprobability sample of 458 nurses at an academic medical center in California (response rate 46.68%). The purpose of this study was to describe nurses' practices, knowledge, and attitudes related to evidence-based nursing and the relation of perceived barriers to and facilitators of EBP. Two reliable and valid questionnaires, the BARRIERS to Research Utilization scale and the Evidence-Based Practice Questionnaire (EBPQ), were electronically formatted and administered using a secured website. Findings indicate the top perceived organizational barriers were lack of time and lack of nursing autonomy. Reported facilitators included learning opportunities, vulture building, and availability and simplicity of resources. Statistically significant correlations were found between barriers and practice, knowledge and attitudes related to EBP (Brown, Wickline, Ecoff, & Glaser, 2009). The findings in this study provide a roadmap for organizations to begin educational initiatives to promote and increase capacity for EBP. The application of research-based needs assessments, such as the findings reported in this study, can create an evidence-based foundation for organizational strategic planning.

Hart et al. (2008) conducted a descriptive, quasi-experimental using a one-group, pre-intervention survey, intervention, and post-intervention survey method. The purpose of this study was to conduct a baseline assessment of nurses' perceptions of knowledge, attitude, and skill level related to EBP and research utilization, determine the level of organizational readiness for implementing EBP and research, and examine the effectiveness of a computer-based educational program on nurses' knowledge, attitude, and skill level related to EBP and research utilization. A convenience sample of 744 registered nurses (RNs) and licensed practical nurses (LPNs) working in an integrated health care system located in a southeastern state in the United States was recruited. The Evidence-Based Nursing Questionnaire was used to measure conditions that nurses believe support or hinder the development of evidence-based nursing. Education on EBP and research utilization was provided via three computer-based learning modules. Statistically significant differences in perceptions knowledge, attitude, and skill level as well as organizational readiness were found after nurses participated in the computer-based intervention. Nurses had a positive attitude toward EBP. The majority of nurses reported feeling confident in understanding the language used in research publications and less confident about their abilities in understanding research statistics. Although nurses reported positive attitudes about using research to support nursing best practice, gaps in knowledge and skills in retrieving research publications, evaluating the evidence, and incorporating the evidence into practice remain. Managers, senior nursing administrators, and staff nurses on their unit were rated higher than hospital managers in supporting changes to practice based on research. The researchers concluded that computer-based education is an effective approach that can be used by nursing leaders in healthcare organizations to educate and engage nurses in EBP and research utilization. This study may be limited by interruptions that may have occurred during content review of the

three CBL modules and completion of the surveys, interactions nurses may have had with other nurses while completing the pre- and post-surveys that may have influenced their responses, and nurses may have been exposed to other EBP initiatives outside of the organization during the seven month period in which the study was conducted.

Ross (2010) conducted a descriptive, exploratory study, for the purpose of examining perianesthesia nurses' perceptions of searching skills and access to evidence sources. Sixty-four American Society of PeriAnesthesia Nurses (ASPN) and 64 nonmembers completed the Information Literacy for Evidence-Based Practice instrument used to measure levels of information literacy. The researcher found that ASPN members read more journals articles, were more proficient with computers, and used CINAHL more frequently than nonmembers. The top three barriers other than time to use of research included lack of understanding of organization or structure of electronic data bases lack of skills to critique and/or synthesize literature, and difficulty in accessing research materials. The findings from this study reinforce Pravikoff et al.'s (2005) conclusion that nurses, including perianesthesia nurses, are not ready for EBP because they lack information literacy to accomplish this task.

### **EBP Barriers.**

Fink, Thompson, and Bonnes (2005) conducted a pre-experimental (descriptive, cross-sectional pre- and post-survey design) study to identify barriers to implementing EBP and to promote the use of research in practice. The purpose of this study was to determine the effect of multifaceted organizational strategies on RNs' use of research findings to change practice in an academic hospital. The aims were to (a) identify nurses' attitudes and perceptions about organizational culture and research utilization, (b) identify barriers and facilitators to nurses' use of research in practice, and (c) determine which factors correlate with research utilization. A

convenience sample composed of all RNs on inpatient units at a large university-affiliated Magnet hospital. At baseline, 880 surveys were distributed and 215 were returned (24% response rate). Eight hundred and ninety surveys were distributed post-intervention and 239 were returned (27% response rate). The sample consisted of 67% of nurses prepared at the baccalaureate level and 16% with advanced degrees. The BARRIERS to Research Utilization Scale and the Research Factor Questionnaire, both with excellent internal consistency reliabilities, were used to measure nurses' attitudes and beliefs about research utilization. Roger's Diffusion of Innovations, a behavioral theory that outlines the processes through which a new invention gets adopted or rejected, was used to guide the study. Three major barriers were identified by the pre-intervention sample respondents, including (1) RN authority to change practice, (2) RN awareness of research, and (3) time to read on the job. The perception of these barriers improved on the post-intervention survey, after implementation of multifaceted intervention strategies. Journal club participation was one of the key strategies that enhanced research utilization (105 nurses reported participation in a journal club). Sixty-two percent reported a low level of research activity participation. In the post-implementation period, 83% of nurses reported they understood the concept of research utilization, 63% reported they were aware of organizational strategies related to research utilization over the past year, 65% reported that they had an awareness of research findings from participating in research activities, and 49% reported the belief that their patients benefited from their research involvement in terms of positive outcomes. The four major barriers to the use of research reported by the respondents were (1) difficulty in changing practice, (2) lack of administrative support (from managers and supervisors) and mentoring, (3) insufficient time, and (4) lack of education on the research utilization process. Activities considered most useful by the staff were a "hands-on" approach in critiquing research

findings, allowing the participants to see how findings get translated into practice, and encouraging staff discussion by the staff. This study provides evidence to support multifaceted interventions to advance EBP and use of research findings in practice can improve nurses' attitudes, beliefs and participation in research activities. Caution should be used in generalizing the results to other clinical settings for the following reasons: (a) the design used was pre-experimental (a single group was studied but no comparison between an equivalent non-treatment group was made), (b) the same nurses did not complete the pre- and post-test intervention surveys, which calls into question whether the results are a true indicator of change in this sample, (c) the intervention was multifaceted and it cannot be exactly known what components were specifically responsible for the change in outcomes, and (d) the response rate was low and, therefore, it cannot be determined whether the nurses who participated in the study were different as well as more interested and motivated to implement EBP than the nurses who did not participate in the study. Despite these limitations, this study reinforces the importance of administrative support and mentoring, empowerment of nurses to change practice, and the need for adequate resources such as time, access to educational workshops, and hands-on experiences in advancing evidence-based care.

Solomons and Spross (2011) conducted an integrative review to examine individual and institutional barriers and facilitators to EBP using Shortell's continuous quality improvement (CQI) framework. Clinical research, EBP research and quality improvement research are distinct yet related areas of inquiry. QI activities often provide the local context for EBP efforts whereas clinical research provides the empirical evidence for EBP. The authors used Shortell's four dimensions of quality improvement to provide a means of analyzing and organizing findings about EBP barriers and facilitators across studies that have used different theories and

instruments and the Pravikoff et al. (2005) comprehensive descriptive study of EBP. The authors utilized 23 descriptive studies that broadly answered the question “What are the barriers to implementing EBP in the workplace?” Shortell’s framework, which includes individual and institutional factors, provides insight into the underlying sources of barriers. His framework addresses the strategic, cultural, technical and structural dimensions of an organization. He maintains that all four dimensions must be addressed if CQI is to be lasting and effective. Therefore it is important to understand these factors as well as the CQI dimensions in evaluating EBP adoption. Findings indicate that across the articles, the most common barriers were lack of time and lack of autonomy to change practice, which falls within the strategic and cultural dimensions in Shortell’s framework. Solutions to the barriers need to be directed to the dimension where the barrier occurs, while recognizing that multidimensional approaches are essential to the success of overcoming these barriers. The findings of this study can help nurses identify barriers and implement strategies to promote EBP as part of CQI.

Linton and Prasun (2013) conducted a retrospective descriptive study that was administered to 286 practicing nurses in a Midwestern US acute care facility. The purpose of the study was to examine nurses’ attitudes and knowledge of EBP and to examine nurses’ perceptions of organizational support. The Evidence-Based Practice Questionnaire was used to assess nurses’ knowledge and attitude of EBP and the Attitudes to Evidence-Based Practice Questionnaire was used to assess barriers to EBP. The findings from this study indicate that nurses have a positive attitude toward nursing. However, they do not find evidence so important that they make time in their work schedule to secure evidence, which may be related to heavy patient care assignments rather than an indicator of attitude. Nurses reported that their practice was evidence-based. However, they also reported only an average ability to retrieve or critically

analyze evidence. Nursing management was not supportive and few found administrative support in the use of EBP. Nurses identified the need for a mentor. The results showed a significant correlation between the attitudes and knowledge questions and education; higher levels of education resulted in an increase in attitude and knowledge of EBP.

### **EBP Facilitators.**

Dogherty, Harrison, and Graham (2010) conducted a systematic search of electronic databases to identify theory and research-based nursing papers explicitly focused on facilitation in research utilization. Through a content analysis, the researchers examined how the concept of facilitation is being used, described and applied within nursing. The researchers examined how facilitation has evolved over the past decade, focusing on what is entailed in operationalizing and implementing facilitation in nursing at the point-of-care. The researchers formulated a taxonomy that outlines the activities involved in facilitation of research utilization in nursing: (1) facilitation is now being viewed as an individual role as well as a process involving individuals and groups, (2) project management/leadership are important components, (3) no matter which approach is selected, tailoring facilitation to the local context is critical, and (4) there is a growing emphasis on evaluation, particularly linking outcomes to nursing actions. The content analysis also found five emerging commonalities related to facilitation strategies: (1) increasing awareness of a need for change, (2) leadership and project management, (3) relationship-building and communication, (4) importance of the local context, and (5) ongoing monitoring and evaluation. While we are beginning to understand “what” facilitators do, there is a need for greater understanding of “how” they perform these activities in relation to research utilization.

Gerrish et al. (2011) conducted a multiple case study that included 23 advance practice nurses (APNs) from hospital and primary care settings across seven English health authorities.



Data was collected using interviews and observations of APNs and interviews with frontline nurses (FLN) and other health professionals. The purpose of this study was to identify approaches used by advanced practice nurse (APNs) to promote EBP among clinical nurses. Gerrish et al. (2011) found that APNs acted as “knowledge brokers” in promoting EBP among clinical nurses and that knowledge management and promoting the uptake of knowledge were key components of knowledge management. Knowledge management involved generating different types of evidence, accumulating evidence, synthesizing different forms of evidence, translating evidence by evaluating, interpreting, and distilling it for different audiences, and disseminating evidence by formal and informal means. Caution should be taken in generalizing these findings as the sampling strategy deliberately sought to include a small number of APNs who were committed to promoting EBP. In addition, self-reported behavior in the interviews may not equate to actual behavior. The researchers concluded that knowledge brokering is complex and multifaceted and extends beyond knowledge management, linkage, and capacity building to include active processes of problem-solving and facilitating change. APNs act as knowledge brokers in facilitating the link between evidence and practice and knowledge management and promoting the uptake of knowledge are key components of knowledge brokering.

Gerrish et al. (2012) conducted a multiple case study that included 23 APNs from hospital and primary care settings across seven English health authorities. Data was collected using interviews and observations of APNs and interviews with frontline nurses (FLN) and other health professionals. Data was analyzed using the Framework approach. The purpose of this study was to identify factors that influence APNs ability to promote EBP among FLNs. Findings includes the identification of four groups of influencing factors: (1) Personal attributes of APNs

included knowledge and skills in EBP, clinical credibility with frontline staff and leadership style. (2) Relationship with stakeholders included APNs' interactions with FLNs and the level of support from managers and medical colleagues. (3) Aspects of the APN role included their sphere of responsibility and workload. (4) Organizational context included the organizational culture, FLNs' workload, professional networks and available resources. This study focused solely on APNs who were positive about promoting EBP. The findings from this study emphasize the need for educational preparation for APNs that allows them to develop the expertise in EBP in addition to interpersonal and leadership skills to manage relational dynamics in clinical settings. APN role specifications should provide opportunities to promote and disseminate EBP. An organizational culture conducive to enabling EBP should consist of supportive managers and an organizational context that fits with strategic goals, has an enabling and empowering approach to change, and provides resources that allows for the achievement of EBP. Organizational commitment at the highest level is key to the APNs' ability to fulfill these aspects of their roles.

### **Implementation of EBP.**

Varnell, Haas, Duke, & Hudson (2008) conducted a quasi-experimental study to evaluate the effectiveness of an accelerated development program on the attitudes toward and use of EBP among nurses employed in acute care facilities. The transtheoretical model of organizational change was used to guide this study. The sample included 49 nurses from five acute care facilities who participated in an eight-week program to develop into EBP champions. Participants attended a two hour class each week and pre- and post scores on the EBP Beliefs (EBPB) and EBP Implementation (EBPI) Scales were compared. Nurses reported statistically significant higher scores on both scales at the end of the program. Limitations conclude a

convenience sample, not every participant attended all eight sessions, and some organizations may not have access to collaboration with a university. This study might serve as a model for other organizations interested in strengthening collaboration between academia and practice to promote EBP.

Melnyk, Fineout-Overholt, Giggelman, and Cruz (2010) conducted a study using a descriptive, correlational design to examine the relationships among EBP beliefs, EBP implementation, organizational culture, group cohesion, and job satisfaction in 58 frontline clinicians, managers, and advanced practice nurses prior to their participation in a 12-month EBP mentorship program as part of implementing the ARCC Model in a community hospital system in the Western region of the United States. Several instruments were used including the OCRSIEP scale, the EBPB scale, the EBPI scale, the Group Cohesion scale, and the Price and Mueller Job Satisfaction questionnaire. Findings indicate that participants' EBP beliefs were significantly correlated with perceived organizational culture and readiness for EBP, the extent to which they implement EBP in practice, group cohesion, and job satisfaction. In addition, organizational culture for EBP was significantly and positively related to EBP beliefs and EBP implementation. These findings support the need for healthcare systems to establish cultures that facilitate EBP and to strengthen nurses' and health professionals' cognitive beliefs about the value of EBP and their ability to implement it in order to improve care, patient outcomes, and job satisfaction. Limitations include a small convenience sample and potentially biased responses compared with a randomly selected sample.

Wallen et al. (2010) conducted a quasi-experimental mixed methods study that included three focus discussions with nursing leadership and shared governance staff as well as pre- ( $n = 159$ ) and post-intervention ( $n = 99$ ) online questionnaires. The purpose of this study was to

evaluate the effectiveness of a structured multifaceted mentorship program designed to implement EBP in a clinical research-intensive environment. The sample included nurses those targeted for the EBP mentor program and survey who would ultimately participate in leading and/or mentoring nurses at all levels and in all specialties through the nursing department of a 234-bed research hospital in Bethesda, Maryland, the largest inpatient facility in the United States devoted exclusively to clinical research. Several instruments were used within this study, including, SIEP, EBPB, EBPI, the Group Cohesion scale, and the Price and Mueller Job Satisfaction questionnaire. The ARCC model was used because of its focus on advanced practice nurses as EBP mentors and the involvement of staff at all levels of implementation. Findings indicate that participants in the EBP mentorship program had a larger increase in perceived organizational structure and readiness for EBP and in EBP belief scores than those who did not participate. Qualitative findings suggested that leadership support of a culture for EBP and dedication of resources for sustainability needed to be a priority for engaging staff at all levels. Beliefs about EBP are significantly correlated with EBP implementation and having a mentor leads to stronger beliefs and greater implementation by nurses as well as greater group cohesion, which is a potent predictor of turnover rates in nursing. Limitations include non-randomization of the sample, non-randomization of participants to the mentorship or comparison groups, and attrition from the pre- to the post- intervention survey which threatens the internal validity of the study.

Levin, Fineout-Overholt, Melnyk, Barnes, & Vetter (2011) conducted a 2-group randomized controlled pilot study using 46 nurse managers and visiting staff nurses from the Visiting Nurse Service of New York (VNSNY). The purpose of this study was to determine the preliminary effects of implementing the Advancing Research and Clinical practice through close

Collaboration (ARCC) model on nurse and cost outcomes in a community health setting, including nurses' EBP beliefs, EBP implantation behaviors, group cohesion, productivity, job satisfaction and attrition/turnover rates. The EBP educational intervention phase lasted 16 weeks and included the nurses in the ARCC model group were provided (a) didactic content on EBP basics through live presentations by an APN with expertise in EBP; (b) an EBP toolkit, which included narrative text on the content presented in the presentations; (c) environmental prompts such as posters that encouraged the nurses to use EBP; (d) an EBP mentor who was available on site and by email for consultation. The nurses in the attention control group did not receive the mentorship intervention or any EBP education; instead they received didactic content of adult physical assessment that was comparable in length. Both groups received live intervention information sessions. Three instruments were utilized for measurement in this study including the Evidence-Based Practice Implementation Scale, the Group Cohesion Scale, the Index of Work Satisfaction. Data were collected at baseline and after completion of the intervention protocol. Limitations include a sample convenience sample used within a pilot study, the EBP mentor for the intervention group may have influenced how the nurses' responded on the study's instruments. The researchers found that the ARCC ( $n = 22$ ) versus an attention control group ( $n = 24$ ) had stronger EBP beliefs, higher EBP implementation behaviors, more group cohesion, and less attrition/turnover. The researchers concluded that the implementation of the ARCC model in healthcare systems might be a promising strategy for enhancing and advancing EBP and improving nurse and cost outcomes. This pilot study also demonstrated that education alone does not seem to result in changes in EBP implementation and the use of an EBP mentor is a key strategy for enhancing EBP beliefs and implementation.

Melynk, Fineout-Overholt, Gallagher-Ford, and Kaplan (2012) conducted a descriptive survey utilizing a randomly selected sample from the American Nurses Association (ANA) electronic database of 20,000 nurses. A total of 1015 ANA members responded to the survey for a response rate of five percent. The purpose of the study was to assess the current state of EBP implementation in nurses across the United States. The aims were to (1) assess the state of EBP as reported by U.S. nurses who are members of the ANA, (2) assess the needs of U.S. nurses regarding EBP, (3) determine whether the needs and reported state of EBP differ between master's degree and non-master's degree prepared nurses and (4) determine whether the needs and reported state of EBP differ between nurses from Magnet versus non-Magnet institutions. The survey was composed of demographic questions, ten of eighteen items taken directly from the EBPB scale and the EBPIS scale. Which have well-established construct validity and excellent internal consistency reliability. In addition, two open-ended questions were included in the survey: (1) "What one thing most prevents you from implementing EBP in your daily clinical practice?" and (2) "What one thing would help you the most to implement EBP in your daily clinical practice?" The researchers found that the individual barrier to EBP that nurses reported most often was lack of value for EBP with the greatest organizational barrier to EBP identified most often was time to do EBP. In contrast to findings from Pravikoff and colleagues (2005), this study indicates that nurses surveyed across the country are ready for and value EBP. Many of the barriers to implementing EBP reported by nurses in the survey were the same barriers that have been reported for decades, including lack of time, knowledge, mentors, and organizational support. Lack of an organizational culture that supports EBP, a major factor reported in previous studies, was also cited by respondents in this study as a major barrier for implementing EBP. Barriers not frequently reported in prior literature that was noted by this sample include lack of

available information, and evidence to support EBP efforts. In the free text comments, a clearing-house of evidence/information was the commonly identified need. Resistance to EBP from colleagues and peers is not a new phenomenon, but resistance from nurse leaders and managers identified in this study is a newly identified barrier that requires attention, as their support is critical in order for point-of-care staff to implement EBP. This study also indicates that Magnet hospitals promote an organizational culture that supports EBP, provide EBP experts and education, facilitate routine implementation of EBP, and recognize nurses for their EBP efforts more than non-magnet hospitals. However, nurses from both Magnet and non-Magnet hospitals believe in the value of EBP and feel it is important to gain more knowledge and skills in EBP as well as to have access to EBP mentors. Findings from this study have important implications for nurse leaders and educators in both academic and clinical settings. This study reinforces the tremendous need for nurse executives and nurse leaders to build organizational cultures that support EBP, implement strategies to build EBP knowledge and skills, and provide environments where EBP can thrive and be sustained. Limitations of this study include a low response rate and knowing how the characteristics of the responders compared with those of the non-responders or how RNs in general.

Hauck, Winsett, and Kuric (2012) conducted a prospective, descriptive comparative study using a convenience sample of 427 RNs (63% participations rate) at baseline and 475 RNs (57% participation rate) in the final sample in a non-teaching faith-based hospital in a moderated-sized city in the Midwest U.S. The purpose of this study was to assess nurses' beliefs of the importance of EBP, the frequency of using EBP in daily practice, the perception of organizational readiness for EBP after implementation of an EBP enculturation strategic plan, and to assess the beliefs, frequency and readiness by three levels of nurses: direct care nurses,

indirect care nurses, and director/leaders. Three scales were used, including the EBPB scale, the EBPI scale and the Organizational Culture & Readiness for System-Wide Integration of Evidence-Based Practice (OCRSIEP) Survey. Findings indicated that leadership facilitated infrastructure development in three major areas: incorporating EBP outcomes in the strategic plan, supporting mentors, and advocating for resources for education and outcome dissemination. With the interventions in place, total group scores for beliefs and organizational readiness significantly improved. Direct care nurses' scores improved more than other role types. Limitations include the cross-sectional convenience sample was analyzed using independent groups and assessing individual strategies for effectiveness was not done as it wasn't feasible in the setting that was utilized. Including goals for EBP enculturation in the strategic plan gives the structure for nursing leaders. Nursing leaders who participate in the learning culture as mentors and role model EBP create substantial culture movement. And finally, nursing leadership can overestimate organizational beliefs and readiness for EBP.

In summary, research utilization begins with the publication of research with a clinical application while EBP begins when an important clinical question that emerges from practice, education, or administration. This has exciting implications for nurses. Instead of waiting for the best evidence to come to practitioners, practitioners go to the best evidence. Nurses have the opportunity to be active seekers of knowledge about important problems faced in practice. EBP is fundamental to this process. Research indicates that nurses value EBP but lack the required resources within their organizations. Organizational leadership is key to evaluating the needs of the organization, identifying resources, and creating a strategic plan for infusing EBP into the fabric of the organization (Newhouse, 2007). Creating EBP infrastructure should be approached as an organizational strategy and a change process. An organizational leader who can build



infrastructure and enable an EBP culture will enhance the professional work environment where nurses feel engaged in clinical decisions and base their practice on the best available evidence.

### **Chapter Three: Methods**

#### **Purpose**

The purpose of this project is to conduct a needs assessment survey of primary care NP's perceptions of readiness for EBP implementation at a Midwestern federally qualified health center with level three patient-centered medical home certification from the National Committee for Quality Assurance (NCQA).

#### **Project Design**

A descriptive study, specifically a cross-sectional survey design, with a quantitative approach was used. The cross-sectional approach to surveys seeks to obtain information at a single point in time and to establish the prevalence of attitudes, behaviors, or health and illness events (Stommel & Wills, 2004). The project design included three descriptive surveys, the Organizational Culture & Readiness for System-Wide Integration of Evidence-Based Practice Survey developed by Fineout-Overholt and Melnyk in 2006 and the EBP Beliefs Scale and the EBP Implementation Scale both developed by Melnyk, Fineout-Overholt, and Mays in 2008.

#### **Sample**

Human subjects were the source of data for this project design. The participant population included a convenience sample of eight NPs ages 25-60, currently employed in the Midwest in primary care who agreed to participate.

#### **Data Collection Process**

The methods and activities of this project included several steps. The DNP student prepared and combined the informed consent, an introduction letter explaining the purpose and objectives of the study and the three surveys in one electronic format using Checkbox Survey Software through the College of Nursing at The Ohio State University. Participants were

recruited with the approval of the stated primary care organization. OSU Key Personnel collected work email addresses from the administrative office of the stated primary care organization. The recruitment letter (Appendix A), informed consent (Appendix A) and all three surveys were combined into a single email that included a link to the survey and sent by designated OSU Key Personnel to eight NPs currently employed within the same primary care organization in the Midwest. The entire process of reading the recruitment email and completing the survey was estimated to take approximately fifteen minutes. Completing the survey was considered consent to participate. Participants had a period of two weeks to consider completing the survey. At the end of one week, participants who had not yet completed the survey were reminded by email via Checkbox by OSU Key Personnel to consider the invitation to participate. The survey responses were returned to Checkbox. The DNP student obtained survey responses from Checkbox.

There was an IRB determination that the project was Exempt from IRB review. The privacy of participants was maintained. The only data collected in addition to the 53 survey questions was one question asking if evidence-based practice was part of the NP's formal education. No identifiable data such as age, gender, ethnicity, education information, or clinical setting location were collected. There were no incentives to participate in the survey.

As part of the informed consent process, each participant was notified that they could freely decide whether to enroll in the study, discontinue their participation at any time and for any reason, and declining or discontinuing study participation would not result in the loss of benefits to which they were otherwise entitled (Stommel & Wills, 2004). Each participant had the right to full disclosure of the specific risks and benefits that could occur as a result of the research. Study participants were informed that they did not have to answer any questions that

they do not want to answer. Each participant received the informed consent in his/her preferred language (English).

Confidentiality of the data was addressed and maintained. After the data were collected, they were stored securely as Checkbox OSU computer files in a way that meets all of the legal and ethical requirements for maintaining confidentiality and limiting access (The Ohio State University, 2009). Checkbox Survey Software is a powerful, flexible, and easy to use online survey software tool that is used for creating professional surveys while protecting IP addresses for privacy. The DNP student used Checkbox to create an online survey that managed and analyzed data with a standard web browser. Best in class features such as custom email invitations, logic and events based functionality, and an online reporting and data export module to SPSS, SAS, Excel and CSV made this online survey creation and management practically effortless. Checkbox Survey Server is installed directly on the College of Nursing's infrastructure, giving administrators total control over the survey environment. Only Microsoft active directory authenticated users can log in to create surveys or view the responses. Users are assigned to roles to limit which authenticated user can view/modify survey questions or view responses. The checkbox server is behind a Cisco ASA (adaptive security appliance <http://www.cisco.com/en/US/products/ps6120/index.html>) that provides intelligence threat defense and prevents hackers from gaining access to the systems. SSL (secure sockets layer) technology was employed to encrypt all web traffic to collect responses utilizing 128-bit encryption. This is the same security employed by merchants to secure online credit card payments. The data that the DNP student downloaded from Checkbox was coded and did not contain participant email addresses or any identifiable information. The data will be archived for

a minimum of five years after the final project closeout, with primary data retained wherever possible (The Ohio State University, 2009).

There were several anticipated barriers to the project. The first is the small convenience sample size. Several sampling errors or sources of bias may have occurred including the survey questions themselves, formatting of the questions, the accuracy and interpretability of the responses, the consistency of the data collection procedures across survey participants, the accuracy of information about membership of the target population, refusal to participate among selected members, and item nonresponse by respondents participating in the survey. Good surveys minimize total survey error, not just sampling error (Stommel & Wills, 2004). A key issue when using surveys for data collection is the participant nonresponse rate. To some extent all survey studies suffer from biases in nonresponse of study participants (Stommel & Wills, 2004). The contacted NPs who consented to participate are likely to differ from those who refused to participate. In the final analysis, when response rates are lower than 80%, it is reasonable to expect that there is some bias (Stommel & Wills, 2004). Item nonresponse can also lead to bias when analyzing data involving the variables in question. Often, the reason for item nonresponse is either a technical defect in the way the questions were posed or a sensitivity that the item provoked among the survey participants. And lastly, it is important to consider the validity of the data obtained and whether the questions asked of survey participants have been answered truthfully. It is important to consider that there are many sensitive subject areas that may have provoked participants to be less than forthcoming. These sensitive subject areas may include social desirability as the participants are colleagues of the DNP student, professional embarrassment regarding lack of knowledge as an advanced practice nurse, fear of repercussion

from administration and/or colleagues, attempting to please administration and/or colleagues and not taking the time to thoughtfully consider an answer for each survey question.

### **Instruments**

Three instruments were utilized. Validity and reliability for these three surveys have been supported and published. One additional question was added that was not part of the survey regarding the extent to which EBP was incorporated in the NP's formal education.

The first survey, OCRSIEP scale (Appendix B) developed by Fineout-Overholt & Melnyk (2006), focuses on NPs' perceptions of organizational and cultural readiness prior to implementation of EBP. The scale has 19 items. The first 16 items and item 19 were scored on a Likert-like scale with anchors 1 (none at all) through 5 (very much). The final question (item 19) was a 10 cm visual analogue scale in the original survey developed by Fineout-Overholt and Melnyk (2006) but was converted to a Likert-scale for ease of electronic response. One item (Item 17) was scored on a 5-point frequency scale from 1 (indicating none) through 5 (indicating 100% of the time). One question item (item 18) was scored on a Likert-like scale using the anchors 1 (not ready) through 5 (past ready and onto action). The developers reported a Cronbach's alpha for the single scale analysis greater than or equal to 0.90 (Melnik, Fineout-Overholt, & Mays, 2008). One change was made to the original wording of the survey; each question that contains the words "staff nurse(s)," "nursing staff" or "nurses" was changed to "nurse practitioner(s)" and includes questions 3, 6, 10 and 11.

The second survey, the EBPB Scale (Appendix C), assesses NPs strength of beliefs in EBP. The scale contained 16 items that allow measurement of an individual's beliefs about the value of EBP and the ability to implement it. Congruent with the ARCC theoretical model, beliefs in EBP were defined as support for the premise that EBP improves clinical outcomes and

confidence in one's EBP knowledge and skills (Melnik et al., 2008). The survey uses a 5-point Likert-scale ranging from 1 (strongly disagree) through 5 (strongly agree). Scoring of the instrument consisted of reverse scoring two negatively phrased items and then summing responses to the 16 items for a total score that ranges from 16 to 80. The developers reported a Cronbach's alpha of 0.90 indicating the internal consistency for the scale was excellent (Melnik et al., 2008). Melnik et al. (2008) report that through factor analysis, the EBP Beliefs Scale measures unidimensional constructs.

The third survey, the EBPI Scale (Appendix D), measures the extent of actual EBP implementation. Congruent with the ARCC theoretical model, implementation of EBP was defined as engaging in relevant behaviors that included seeking and appraising scientific evidence, sharing evidence or data with colleagues or patients, collecting and evaluating outcome data, and using evidence to change practice (Melnik et al., 2008). The scale contained 18 items on a 5-point frequency scale ranging from never to daily indicating how often in the past eight weeks the item was performed. The scales range from 0 (meaning zero times) through 4 (meaning greater than eight times). Scoring consists of summing responses to the 18 items for a total score that could range from 0 to 72. The developers reported a Cronbach's alpha of 0.96 indicating the internal consistency for the scale was excellent (Melnik et al., 2008). Melnik et al. (2008) report that through factor analysis, the EBP Implementation Scale measures unidimensional constructs.

Both the EBP Beliefs and EPB Implementation Scales had good psychometric properties (Melnik et al., 2008). The response patterns on individual items and total score indicated that both scales were sensitive to a wide range of attitudes and behaviors. The criterion validity indicates that the strength of beliefs in EBP is strongly associated with the frequency of

implementing EBP and this relationship is strongest among participants who had prior training in EBP. This suggested that while formal training in EBP was not a prerequisite to beliefs about EBP, training did facilitate implementation of EBP. Level of education was strongly associated with beliefs about EBP and implementation of EBP, suggesting that graduation education increases appreciation of the positive impact of EBP, instilling a desire to use EBP to improve patient outcomes. Nursing role was significantly associated with EBP beliefs and EBP implementation with nurse educators and faculty having significantly stronger beliefs and implementing EBP significantly more frequently than staff nurses (Melnik et al., 2008). EBP Beliefs and EBP Implementation scales are psychometrically sound scales that can be used to systematically study the effect of EBP educational and mentorship programs on EBP skills, clinical care, job satisfaction and retention.



## Chapter Four: Findings

### Results

Eight primary care NPs were invited to participate in completing three surveys combined in a single email. One NP responded within the first week (10/21/14 through 10/27/14) that data were collected. Seven days from the initial email a reminder email was sent by OSU Key Personnel to the email addresses that had not responded. Four additional NPs responded during the second week (10/28/14 through 11/4/1).

The OCRSIEP Survey assessed organizational and cultural readiness for EBP implementation. NP responses ranged from “a little” to “very much” for the extent to which EBP is clearly described as central to the mission and the philosophy of the organization and for the extent to which it is practiced. Three NPs perceived the staff nurses to be “a little” committed, the physician team to be “somewhat” committed and the administrators to be “a little” to “somewhat” committed to EBP. NPs perceive there to be “somewhat” to a “moderately” sized critical mass of nurses who have strong EBP knowledge and skills. There were “none” to “a little” doctorally prepared nurse scientists within the organization to assist in generation of evidence when it did not exist. Four NPs perceived there were APN mentors available for staff nurses as well as other APNs. The NPs perceived that practitioners were “moderately” to “very much” demonstrating EBP in their clinical setting. NPs perceived that staff nurses have little access to quality computers and electronic databases for searching for the best evidence, although they were “moderately” to “very much” proficient in computer skills. There were no librarians within the organization. The perceived extent of fiscal resources used to support EBP ranged from “a little” to “very much.” The data revealed little agreement amongst NPs regarding EBP champions within administration and the physician team. There were none to very few

nurse educator EBP champions. The NPs agreed that there were “somewhat” to “very much” APN EBP champions and “a little” to “somewhat” staff nurse EBP champions. The measurement and sharing of outcomes was perceived to be “somewhat” to “moderate.” NPs perceived the extent to which decisions were generated by administration to be “25%” to “100%.” Three NPs responded the extent to which decisions were generated by physicians and NPs was “50%.” The extent to which decisions were generated by staff ranged from “none” to “25%.” Overall, organizational readiness for EBP was perceived as “getting ready,” “been ready but not acting” or “ready to go” and has made “somewhat” to “moderate” progress in the past six months. EBP was incorporated into the NPs’ formal NP education “moderately” to “very much.” Statistically, the means for each question within the OCRSIEP Survey ranged from 1 to 4.6. The medians ranged from 1 to 5 and the modes ranged from 1 to 5 (Table 1). The standard deviations ranged from 0.00 to 1.64. Total survey scores were 53 (one question unanswered), 59, 75 (two unanswered questions), 84, and 99 (one unanswered question) out of a possible 130 points.

Table 1

*Summary Statistics for OCRSIEP Survey and Additional Question*

<b>Question</b>	<b>Sample Size</b>	<b>Mean</b>	<b>STD</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Question 1</b>	5	3.2	1.30	2	5
<b>Question 2</b>	5	3.4	1.14	2	5
<b>Question 3</b>	5	3	1.41	2	5
<b>Question 4</b>	5	3.4	0.89	3	5
<b>Question 5</b>	5	3.2	1.30	2	5
<b>Question 6</b>	5	3.2	0.84	2	4
<b>Question 7</b>	5	1.8	0.84	1	3
<b>Question 8</b>	5	2.2	1.30	1	4

<b>Question</b>	<b>Sample Size</b>	<b>Mean</b>	<b>STD</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Question 9</b>	5	3.8	0.84	3	5
<b>Question 10</b>	5	2.2	1.64	1	5
<b>Question 11</b>	5	3.8	0.45	3	4
<b>Question 12</b>	4	1	0	1	1
<b>Question 13</b>	4	1	0	1	1
<b>Question 14</b>	5	3.2	1.48	1	5
<b>Question 15a</b>	5	3.2	1.64	1	5
<b>Question 15b</b>	5	3	1.58	1	5
<b>Question 15c</b>	5	2	1.41	1	4
<b>Question 15d</b>	5	4	1	3	5
<b>Question 15e</b>	4	2.75	0.50	2	3
<b>Question 16</b>	4	3.5	0.58	3	4
<b>Question 17a</b>	5	1.6	0.55	1	2
<b>Question 17b</b>	5	3.8	1.30	2	5
<b>Question 17c</b>	5	2.8	1.10	1	4
<b>Question 18</b>	5	3	1.00	2	4
<b>Question 19</b>	5	3	1.22	1	4
<b>Question 20 (Additional Question)</b>	5	4.6	0.55	4	5

The EBPB Scale assessed the NPs strength of beliefs in EBP. NPs “agreed” or “strongly agreed” that EBP results in the best clinical care for patients, they had clarity regarding the steps of EBP and in their ability to implement EBP, that critically appraising the evidence was an important step in the EBP process and that EBP guidelines can improve clinical care. Two out of

five NPs believed they could search for the best evidence to answer clinical questions in a time efficient way and three out of five “agreed” or “strongly agreed” they could overcome barriers in implementing EBP. Two NPs believed they could implement EBP in a time efficient way. All five NPs “agreed” or “strongly agreed” that implementing EBP will improve care they deliver to their patients. Most were sure about how to measure outcomes of clinical care. One NP “disagreed” that EBP takes too much time and one “strongly agreed” that it takes too much time. Two NPs believed they could access the best resources in order to implement EBP and no one believed EBP is difficult. Most “agreed” or “strongly agreed” that they knew how to implement EBP sufficiently enough to make practice changes, that they are confident about their ability to implement EBP in their place of employment and they believed the care they deliver is evidence-based. Statistically, the means for each question within the EBPB Scale ranged from 2.2 to 4.8 (10 out of 16 responses had a mean of four or more) (Table 2). The medians ranged from two to five (7 out of 16 responses had a median of five) and the modes ranged from two to five (13 out of 16 responses had a mode of five). The standard deviations ranged from 0.447 to 1.517. Total survey scores were 50, 59, 63, 74 and 77 out of a possible 80 points.

Table 2

*Summary Statistics for EBPB Scale*

<b>Question</b>	<b>Sample Size</b>	<b>Mean</b>	<b>STD</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Question 1</b>	5	4.8	0.45	4	5
<b>Question 2</b>	5	4.6	0.55	4	5
<b>Question 3</b>	5	4.6	0.55	4	5
<b>Question 4</b>	5	4.6	0.55	4	5
<b>Question 5</b>	5	4.8	0.45	4	5

<b>Question</b>	<b>Sample Size</b>	<b>Mean</b>	<b>STD</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Question 6</b>	5	3.6	1.34	2	5
<b>Question 7</b>	5	3.8	1.30	2	5
<b>Question 8</b>	5	3.8	1.10	3	5
<b>Question 9</b>	5	4.6	0.55	4	5
<b>Question 10</b>	5	4	1.22	2	5
<b>Question 11</b>	5	3.2	1.10	2	5
<b>Question 12</b>	5	3.4	1.52	2	5
<b>Question 13</b>	5	2.2	0.45	2	3
<b>Question 14</b>	5	4	1.22	2	5
<b>Question 15</b>	5	4	1	3	5
<b>Question 16</b>	5	4.6	0.55	4	5

The EBPI Scale assessed the frequency with which each of the 18 items applied to the NP in the past eight weeks, indicating the strength to which EBP was implemented. All NPs had used evidence to change their clinical practice at least one or more times and had clinically appraised evidence from a research study four or more times. Four had not generated a PICO question about their clinical practice. All NPs had informally discussed evidence from a research study with a colleague one to seven times. Three NPs had collected data on a patient problem one to eight or more times. Three NPs had shared evidence from a study or studies in the form of a presentation to more than two colleagues. Most had not evaluated the outcomes of a practice change. All NPs had shared an EBP guideline with a colleague and evidence from a research study with a patient/family member. Four NPs had shared evidence from a research study with a multidisciplinary team member. All had read and clinically appraised a research study. Three

NPs had accessed the Cochrane database of systematic reviews and two had accessed the National Guidelines Clearinghouse. Four NPs had used an EBP guideline or systematic review to change clinical practice in the place of their employment. Three NPs had evaluated a care initiative by collecting patient outcome data and shared the outcome data collected with a colleague. Three NPs had changed practice based on patient outcome data and all had promoted the use of EBP to colleagues. Statistically, the means for each question within the EBPI Scale ranged from 1.2 to 3.4 (12 out of 18 questions had a mean of 2 to 2.8) (Table 3). The medians ranged from one to three and the modes ranged from one to three. The standard deviations ranged from 0.447 to 1.816. Total survey scores were 31, 34, 41, 53 and 78 out of a possible 90 points.

Table 3

*Summary Statistics for EBPI Scale*

<b>Question</b>	<b>Sample Size</b>	<b>Mean</b>	<b>STD</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Question 1</b>	5	3.2	1.30	2	5
<b>Question 2</b>	5	3.4	0.89	3	5
<b>Question 3</b>	5	1.2	0.45	1	2
<b>Question 4</b>	5	2.8	0.84	2	4
<b>Question 5</b>	5	2.4	1.67	1	5
<b>Question 6</b>	5	2.8	1.79	1	5
<b>Question 7</b>	5	2.4	1.52	1	5
<b>Question 8</b>	5	3.4	1.14	2	5
<b>Question 9</b>	5	3.2	1.30	2	5
<b>Question 10</b>	5	3.2	1.48	1	5
<b>Question 11</b>	5	2.8	1.30	2	5

Question	Sample Size	Mean	STD	Minimum	Maximum
Question 12	5	2.6	1.82	1	5
Question 13	5	2	1.73	1	5
Question 14	5	2.2	0.84	1	3
Question 15	5	2.4	1.67	1	5
Question 16	5	2.6	1.82	1	5
Question 17	5	2	1	1	3
Question 18	5	2.8	0.84	2	4

## Discussion

All of the respondents were between the ages of 25 and 60, had a masters degree or higher in order to practice as an NP and had EBP at least moderately incorporated into their formal NP education. The EBPB Scale had the least variability in NP responses and the highest total scores, indicating strong beliefs in EBP. Research has indicated that the strength of beliefs in EBP and EBPI scores significantly increase with level of education (Melnik et al., 2008). Melnik et al. (2008) found that those with prior exposure to EBP were no different in EBP beliefs than those who had no exposure, but those who had exposure scored twice as high on average on the EBPI Scale. The two highest scoring NPs on the EBPB Scale also scored highest on the EBPI Scale (Table 4). Melnik et al. (2008) also found that participants who had prior exposure to EBP through formal training had EBP beliefs that were more strongly related to frequency with which they implemented EBP and that lack of training might be a barrier to implementation. The two respondents scoring highest in EBP beliefs also scored highest in frequency of EBP implementation (Table 4). The three respondents that scored highest in organizational readiness also scored highest in EBP implementation (Table 4).

Table 4

*Summary Statistics for OCRSIEP Survey, EBPB Scale and EBPI Scale*

	<b>OCRSIEP Total Score plus one additional question</b>	<b>EBPB Total Score</b>	<b>EBPI Total Score</b>
<b>Respondent</b>	<b>130 possible points</b>	<b>80 possible points</b>	<b>90 possible points</b>
<b>Respondent 1</b>	75**	77	78
<b>Respondent 2</b>	53*	63	34
<b>Respondent 3</b>	99*	74	53
<b>Respondent 4</b>	59	50	31
<b>Respondent 5</b>	84	59	41

Note. \* one unanswered question. \*\* two unanswered questions

Melnyk et al. (2008) found that when looking at nursing roles four subgroups (staff nurse, nurse manager, clinical nurse specialist [CNS], and educator/faculty) had roles that should systematically vary in number of opportunities for implementing EBP. The strength of beliefs and the frequency of EBP implementation significantly increased from staff nurse to educator/faculty. Nurse practitioners fall in the APN/CNS subgroup in regards to level of education and number of opportunities for implementing EBP and in this study were found to have strong beliefs in EBP.

The OCRSIEP Survey had wider ranges of responses for 75% of the questions (15 out of 20 standard deviations were greater than or equal to one) when compared with the EBPB (50%) and EBPI (72%) Scales. The data indicates that the philosophy of EBP may not yet be system-wide and the administrative support could be stronger and more specifically defined. APNs are a valuable resource in EBP implementation and could be identified and integrated as EBP champions and mentors across the organization.



The stated PCMH primary care organization currently networks with and is housed in the same building(s) with three mental health organizations, dental, Women, Infants, and Children (WIC), pharmacy, and laboratory staff. This may have impacted responses from the four NPs who had shared evidence from a research study with a multidisciplinary team member in the past eight weeks.

## **Conclusions**

Level of education is strongly associated with beliefs about EBP and implementation of EBP, suggesting that graduate education increases awareness and appreciation of the positive impact of EBP and instills a desire to use EBP to improve patient outcomes. One of the first steps in implementing EBP is to establish an educational program for EBP in the clinical setting and to assess the organizational barriers and facilitators, the beliefs about EBP and the available resources that could be dedicated to the implementation of EBP. The ARCC Model recommends the development and use of EBP mentors to facilitate the implementation of EBP. Graduate level NPs within a small organization can be utilized as EBP champions and mentors. Ultimately, increasing EBP implementation could increase healthcare provider satisfaction and employee cohesion while decreasing intent to leave, turnover rates and organizational costs. Improved patient outcomes could also decrease organizational costs.

Establishing an organizational cultural of EBP in the clinical setting is no longer an option it is a necessity. Organizations must make the commitment to provide resources and leadership necessary to transform the culture to one that appreciates the value of and demonstrates EBP daily. Smaller organizations with fewer resources face challenges in implementing and sustaining EBP. Transformational leadership in smaller organizations must create visions and missions that incorporate EBP, potentially making the difference in degree of

sustainability. Transformational leadership is required for an EBP organization to realize the benefits of narrowing the evidence-to-implementation gap.

## **Chapter Five**

### **Project Summary**

The OCRSIEP Survey, the EBPB Scale and the EBPI Scale are valid and reliable tools for assessing organizational readiness among NPs in a primary care setting. The barriers and facilitators to organizational and cultural readiness to implement EBP, the strength of EBP beliefs and the extent to which EBP was implemented were assessed. The NPs within this primary care setting have strong EBP beliefs and are actively implementing EBP though not in a consistent organized manner. NPs within this organization have the potential to serve as EBP champions and mentors. The ARCC Model can be used as a tool to effectively guide the next steps in implementing EBP in this primary care setting.

Key patterns in responses include (1) scores for EBP Beliefs were high, (2) a stronger foundation for EBP could be integrated into the organizational culture (3) administration and staff may not fully understand the EBP process (4) different definitions of EBP may exist amongst NPs, and (5) point of care staff could be empowered to generate decisions.

### **Practice Change Recommendations**

The DNP student will begin by sharing results with the organization and disseminating results amongst FQHCs and community health centers. The following recommendations will be offered to the organization with a suggestion to focus on the first three in the coming year:

- Create an organizational strategic plan that incorporates a cultural foundation for EBP
- Identify and empower EBP champions/mentors within the organization (APNs mentors were perceived to be available within the organization)
- Offer interactive EBP skills building workshops across the organization

- Look for opportunities within the organizational culture to incorporate a foundation for EBP such as initiating EBP Rounds and/or journal clubs
- Support initiatives to partner with or hire doctorally prepared nurses to assist in the generation of evidence when it does not exist
- Support initiatives to partner with librarians
- NPs perceived they were “moderately” to “very much” demonstrating EBP in their clinical setting – build on this strength
- Build on and incorporate the work that has already been done for PCMH certification and meaningful use
- Create access to the tools needed for EBP implementation among staff (i.e. dedicated computers) and electronic database access to search for external evidence
- Identify fiscal resources that can be used for the implementation of EBP
- Carve out specific time for EBP processes

A stronger foundation for EBP could be integrated into the organizational culture. Point of care staff could be empowered to generate decisions. Administration and staff may not fully understand the EBP process and different definitions of EBP may exist amongst NPs. The organization might discover that EBP could be implemented in different ways when comparing EBP in primary care organizations versus hospital settings and in small organizations versus large organizations. The goal will be to guide the organization to discover and define what EBP looks like in a primary care setting. It might also be valuable for the organization to identify ways to measure potential improvements in socioeconomic disparity gaps as EBP is being implemented in primary care.

**Limitations**

The biggest limitation to this study was the small sample size making it difficult to utilize in-depth statistics. Because the DNP student collecting data was also employed at the stated primary care organization collecting personal data such as age, gender, level of education, additional NP leadership roles (i.e. administration, faculty) and area of specialty would have compromised confidentiality.

The response rate for all three surveys was five out of eight or 62.5%. When response rates are lower than 80% it is expected that there will be some sort of bias (Stommel & Wills, 2004). The contacted NPs who responded are likely to differ from those who did not participate. Item nonresponse can also lead to bias when analyzing data involving the variables in question. Reasons for item nonresponse might include a technical defect in the way the questions were posed, a sensitivity that the item provoked among the survey participants or technical errors within electronic surveys when using a mouse or finger pad to click responses to radio buttons and checkboxes.

Several sampling errors or sources of bias may have occurred including the survey questions themselves, formatting of the questions, the accuracy and interpretability of the responses and the consistency of the data collection procedures across survey participants. Incorrect email addresses may have affected the response rate. The accuracy of information about membership of the target population may have affected responses. Two of the eight NPs serve in administrative as well as in clinical roles and some may have been faculty outside of the primary care organization. Multiple leadership roles may affect responses to strength of beliefs and frequency of EBP implementation.

An organization specific limitation may have included differing NP responses based on the team of physicians and nurses they worked with on a daily basis. Some teams may have had different skill sets and been more knowledgeable about EBP than others. For example, there were five different NP responses when answering to what extent are there physician EBP champions. The NPs may also have had different collaborating physicians. This primary care organization employs a quality assurance nurse who gathers and assesses outcome data which may impact the frequency with which physicians or NPs participate in EBP data collection and outcome processes.

And lastly, it is important to consider the validity of the data obtained and whether the questions asked of survey participants had been answered truthfully. There are many sensitive subject areas that may provoke participants to be less than forthcoming. These sensitive subject areas may include social desirability as the participants are colleagues of the DNP student, professional embarrassment regarding lack of knowledge as an APN, fear of repercussion from the organization, administration and/or colleagues, attempting to please administration and/or colleagues and not taking the time to thoughtfully consider an answer for each survey question when time restraints exist.

### **Implications for Nursing Practice and to the DNP Essentials**

EBP is fundamental to the professional practice of nursing (Newhouse, 2007). EBP provides the opportunity to understand the hierarchy of evidence and how to effectively combine external and internal evidence with patient preferences and values, incorporate science into practice, use evidence to guide changes in practice, and improve effectiveness, healthcare quality and patient outcomes. Nurses have the opportunity and responsibility to assist in narrowing the evidence-to-implementation gap. APNs are educated to participate in the formulation of EBP

through research as appropriate to their education level and position. Dissemination of EBP in the form of publications, presentations, consultation, media, and/or journal clubs benefits policymakers, payers, consumers of healthcare, healthcare professionals, educators and researchers. APNs are in a unique position to contribute to nursing knowledge by promoting and participating in a climate of research and clinical inquiry. Nursing leaders, APNs, DNP graduates, educators, and nurse researchers are often viewed as mentors and role models and have an ideal vantage to influence others regarding the implementation, use, and sustainability of EBP.

Clinicians feel more empowered and satisfied in their roles when engaged in EBP, which may translate into reducing turnover rates in healthcare professions. Healthcare professionals seek answers to clinical questions on a daily basis. Because evidence evolves continually clinicians must include the latest evidence in their daily decision-making. Without current best evidence, practice becomes rapidly outdated. Value-based payments are being guided by improving patient outcomes and patient outcomes are improved when the best evidence is utilized. Patients and family members are seeking evidence about the most current and effective treatments regarding their health conditions from a knowledge driven society. APNs are actively engaging in decreasing the evidence-to-implementation gap. Rapid transition of research findings into daily practice must become the norm as healthcare continues to move toward a complete paradigm shift in delivering evidence-based care.

All eight of the DNP essentials of doctoral education for advanced nursing practice (Chism, 2010) in some way apply or impact the objectives of this project.

- Essential I: Scientific underpinnings for practice

- Essential II: Organizational and systems leadership for quality improvement and systems thinking
- Essential III: Clinical scholarship and analytical methods for evidence-based practice
- Essential IV: Information systems/technology and patient care technology for the improvement and transformation of health care
- Essential V: Healthcare policy for advocacy in health care
- Essential VI: Interprofessional collaboration for improving patient and population health outcomes
- Essential VII: Clinical prevention and population health for improving the nation's health
- Essential VIII: Advanced nursing practice



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## Appendix A

### Consent Letter

Dear Nurse Practitioner,

You are being invited to participate in a study because you are a nurse practitioner in a primary care setting. The purpose of this study is to assess organizational readiness for evidence-based practice in primary care. You will be asked to answer 54 survey questions about readiness to implement evidence-based practice within your current clinical setting. No information will be asked regarding personal identity. Answering all survey questions will take approximately 15 minutes. Responses to this survey will be summarized and shared with administration, but will not identify individual responses. We also plan to disseminate findings from this survey.

Anticipated benefits from participation in this study may include a better understanding of nurse practitioners assessments of the barriers and facilitators of organizational readiness for evidence-based practice in primary care. In addition, the results of this study are likely to improve future implementation of evidence-based practice in primary care.

Completion of this survey is voluntary. You may exit the survey at any time. If you decide to stop participating in the study, there will be no penalty to you and you will not lose any benefits to which you are otherwise entitled. Your decision will not affect your future relationship with your place of employment or The Ohio State University. There are no identified risks or harms outside those normally encountered in daily life associated with participation in this study.

Although all answers are optional, completion of the entire survey is greatly appreciated. You have the option to skip questions, stop at anytime, withdraw your participation from the survey or refuse to participate without penalty or loss of benefits to which you are otherwise entitled. There are no right or wrong answers.

All participants will be enrolled from your current place of employment. Your name will not be on the survey. Completion of the online survey will be considered your consent to participate. Your data will be protected with a code to reduce the risk that other people can view the responses. We will work to make sure no one sees your survey responses without approval, but because we are using the Internet, there is a chance that someone could access your online responses without permission.

For questions about the study, or if you feel you have been harmed by taking part in the study, please contact Dr. Margaret Graham at (614) 247-5026.

For questions about your rights as a study participant, or to talk to someone who is not a member of the research team, please contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

The survey will remain open for 2 weeks, until the deadline date of Monday, November 3, 2014. We appreciate your time.

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## Appendix B

**Organizational Culture & Readiness for System-Wide Integration of Evidence-Based Practice (OCRSIEP) Survey**  
Fineout-Overholt & Melnyk, 2006

Below are 20 questions about evidence-based practice (EBP). Please consider the culture of your organization and it's readiness for system-wide implementation of EBP and indicate which answer best describes your response to each question. There are no right or wrong answers.

Item	None at All	A Little	Somewhat	Moderately	Very Much
1. To what extent is EBP clearly described as central to the mission and philosophy of your institution?	1	2	3	4	5
2. To what extent do you believe that EBP is practiced in your organization?	1	2	3	4	5
3. To what extent is the nursing staff with whom you work committed to EBP? ( <i>The "nursing staff" represents RNs, LPNs, and medical assistants.</i> )	1	2	3	4	5
4. To what extent is the physician team with whom you work committed to EBP? ( <i>Physicians only. Do not include NPs.</i> )	1	2	3	4	5
5. To what extent are the administrators within your organization committed to EBP (i.e., have planned for resources and support [e.g., time] to initiate EBP)? ( <i>The "administrators" represent the CEO, CFO, CCO, Director of Operations &amp; the Director of Quality Assurance.</i> )	1	2	3	4	5
6. In your organization, to what extent is there a critical mass of nurses who have strong EBP knowledge and skills? ( <i>"Nurses" represent NPs, RNs, LPNs, and medical assistants.</i> )	1	2	3	4	5
7. To what extent are there nurse scientists (doctorally prepared researchers) in your organization	1	2	3	4	5

to assist in generation of evidence when it does not exist?					
8. In your organization, to what extent are there Advanced Practice Nurses who are EBP mentors for staff nurses as well as other APNs? ( <i>“Advanced Practice Nurses” represent certified nurse practitioners.</i> )	1	2	3	4	5
9. To what extent do practitioners model EBP in their clinical settings? ( <i>“Practitioners” represent physicians, NPs, RNs, LPNs, &amp; Medical Assistants.</i> )	1	2	3	4	5
10. To what extent do staff nurses have access to quality computers and access to electronic databases for searching for best evidence? ( <i>“Staff Nurses” represent RNs, LPNs, &amp; Medical Assistants.</i> )	1	2	3	4	5
11. To what extent do staff nurses have proficient computer skills? ( <i>“Staff Nurses” represent RNs, LPNs, &amp; Medical Assistants.</i> )	1	2	3	4	5
12. To what extent do librarians within your organization have EBP knowledge and skills?	1	2	3	4	5
13. To what extent are librarians used to search for evidence?	1	2	3	4	5
14. To what extent are fiscal resources used to support EBP (e.g., education-attending EBP conferences/workshops, computers, paid time for the EBP process, mentors)?	1	2	3	4	5
15. To what extent are there EBP champions (i.e., those who will go the extra mile to advance EBP) in the environment among:					
a. Administrators? ( <i>CEO, CFO, CCO, Director of Operations &amp; Director of Quality Assurance</i> )	1	2	3	4	5
b. Physicians?	1	2	3	4	5
c. Nurse Educators?	1	2	3	4	5

d. Advanced Nurse Practitioners? ( <i>NPs</i> )	1	2	3	4	5
e. Staff Nurses? ( <i>RNs, LPNs, Medical Assistants</i> )	1	2	3	4	5
16. To what extent is the measurement and sharing of outcomes part of the culture of the organization in which you work?	1	2	3	4	5
<b>Item</b>	<b>None</b>	<b>25%</b>	<b>50%</b>	<b>75%</b>	<b>100%</b>
17. To what extent are decisions generated from:					
a. direct care providers? ( <i>RNs, LPNs, &amp; Medical Assistants</i> )	1	2	3	4	5
b. upper administration? ( <i>CEO, CFO, CCO, Director of Operations &amp; the Director of Quality Assurance.</i> )	1	2	3	4	5
c. physician or other healthcare provider groups? ( <i>Physicians &amp; NPs</i> )	1	2	3	4	5
<b>Item</b>	<b>Not Ready</b>	<b>Getting Ready</b>	<b>Been Ready but Not Acting</b>	<b>Ready to Go</b>	<b>Past Ready &amp; onto Action</b>
18. Overall, how would you rate your institution in readiness for EBP?	1	2	3	4	5
19. Compared to 6 months ago, how much movement in your organization has there been toward an EBP culture?	<b>None at All</b>	<b>A Little</b>	<b>Somewhat</b>	<b>Moderately</b>	<b>Very Much</b>
	1	2	3	4	5

### Additional Question

20. To what extent was EBP incorporated into your formal nurse practitioner education?	<b>None at All</b>	<b>A Little</b>	<b>Somewhat</b>	<b>Moderately</b>	<b>Very Much</b>
	1	2	3	4	5

## Appendix C

**EBP Beliefs (EBPB) Scale**  
Melnik, Fineout-Overholt, & Mays, 2008

Below are 16 statements about evidence-based practice (EBP). Please consider the number that best describes your agreement or disagreement with each statement. There are no right or wrong answers.

Item	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
21. I believe that EBP results in the best clinical care for patients.	1	2	3	4	5
22. I am clear about the steps of EBP.	1	2	3	4	5
23. I am sure that I can implement EBP.	1	2	3	4	5
24. I believe that critically appraising evidence is an important step in the EBP process.	1	2	3	4	5
25. I am sure that evidence-based guidelines can improve clinical care.	1	2	3	4	5
26. I believe that I can search for the best evidence to answer clinical questions in a time efficient way.	1	2	3	4	5
27. I believe that I can overcome barriers in implementing EBP.	1	2	3	4	5
28. I am sure that I can implement EBP in a time efficient way.	1	2	3	4	5
29. I am sure that implementing EBP will improve the care that I deliver to my patients.	1	2	3	4	5
30. I am sure about how to measure the outcomes of clinical care.	1	2	3	4	5
31. I believe that EBP takes too much time.	1	2	3	4	5
32. I am sure that I can access the best resources in order to implement EBP.	1	2	3	4	5
33. I believe EBP is difficult.	1	2	3	4	5
34. I know how to implement EBP sufficiently enough to make	1	2	3	4	5

practice changes.					
35. I am confident about my ability to implement EBP where I work.	1	2	3	4	5
36. I believe the care that I deliver is evidence-based.	1	2	3	4	5

## Appendix D

**EBP Implementation (EBPI) Scale**  
Melnyk, Fineout-Overholt, & Mays, 2008

Below are 18 questions about evidence-based practice (EBP). Some healthcare providers do some of these things more often than other healthcare providers. There is no certain frequency in which you should be performing these tasks. Please answer each question by circling the number that best describes **how often each item has applied to you in the past 8 weeks**.

Item	0 times	1-3 times	4-5 times	6-7 times	8 or more times
37. Used evidence to change my clinical practice ...	0	1	2	3	4
38. Clinically appraised evidence from a research study ...	0	1	2	3	4
39. Generated a PICO question about my clinical practice ...	0	1	2	3	4
40. Informally discussed evidence from a research study with a colleague ...	0	1	2	3	4
41. Collected data on a patient problem ...	0	1	2	3	4
42. Shared evidence from a study or studies in the form of a report or presentation to more than 2 colleagues ...	0	1	2	3	4
43. Evaluated the outcomes of a practice change ...	0	1	2	3	4
44. Shared an EBP guideline with a colleague ...	0	1	2	3	4
45. Shared evidence from a research study with a patient/family member ...	0	1	2	3	4
46. Shared evidence from a research study with a multidisciplinary team member ...	0	1	2	3	4
47. Read and critically appraised a clinical research study ...	0	1	2	3	4
48. Accessed the Cochrane database of systematic reviews ...	0	1	2	3	4
49. Accessed the National Guidelines Clearinghouse ...	0	1	2	3	4
50. Used an EBP guideline or systematic review to change clinical practice where I work ...	0	1	2	3	4



51. Evaluated a care initiative by collecting patient outcome data ...	0	1	2	3	4
52. Shared the outcome data collected with colleagues ...	0	1	2	3	4
53. Changed practice based on patient outcome data ...	0	1	2	3	4
54. Promoted the use of EBP to my colleagues ...	0	1	2	3	4